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PHOTOGRAPHIC INTERPRETATION REPORT

# MENSURAL CHARACTERISTICS OF SOVIET NUCLEAR SUBMARINES



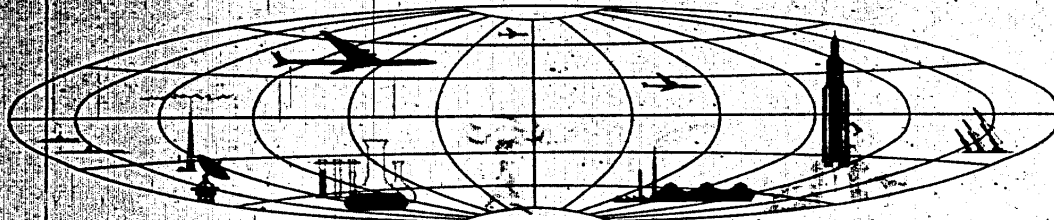
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## MENSURAL CHARACTERISTICS OF SOVIET NUCLEAR SUBMARINES

Continuing exploitation of Kii-7 photography reveals that the imagery available by the end of 1964 permits drafting of relatively detailed plan views and mensural characteristic determination of all currently identified Soviet nuclear submarines.

The report is designed to expand the knowledge available on 6 Soviet nuclear submarines, 5 of which have previously been reported in some detail. The sixth, an E-type, is apparently similar to the E-I-class SSGN but is longer than any known E-I-class SSGN. Also of significance is the confirmation of 2 types of N-class submarines, the N-II-class being approximately 20 feet longer than the N-I-class.

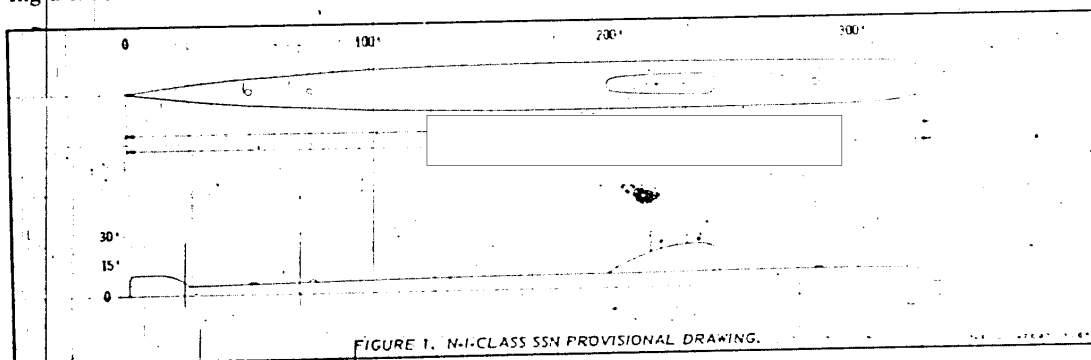
Metric analysis was accomplished by stereo chip comparator, stereo microscope, and monoscopic methods. Scales were established using ground control, known vessels, and ephemeris data. A drawing of each submarine class from each coverage was constructed by vertical projection of each image at an appropriate scale (approximately 1:500) and incorporating the resultant values of repeated measurements. From these drawings, it was then possible to produce relatively accurate drawings reflecting a moderate amount of detail in the plan view.

Table 1. Image Quality of Photography Used

Class	No.	Quality	Location
N-I	1	Excellent	Guba Litsa (South)
N-II	1	Excellent	Petropavlovsk Tarya Bay
E-I	1	Excellent	Strolok Straits
	1	Good	Dunay Razboynik
	1	Poor	Petropavlovsk Tarya Bay
E-II	2	Excellent	Guba Litsa (North)
E-type	2	Excellent	Petrovka
II-I	1	Excellent	Guba Litsa (South)

Available side views <sup>1/</sup> were then projected as composite drawings to the scale of the plan views and only very minor differences were noted (if the scale values of the side views were ignored). Because the various coverages reflect varying qualities of imagery, Table 1 has been included to indicate the image quality of the photography used in this report.

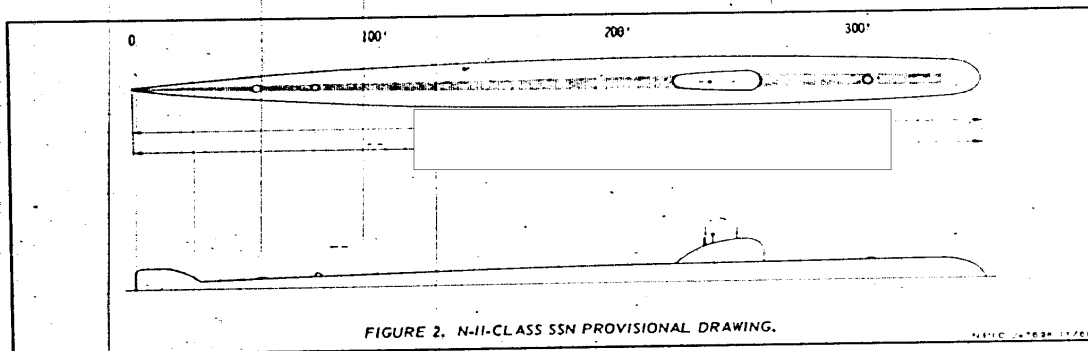
Four N-I-class SSN (Figure 1) were imaged on excellent quality photography. Two of the 4 vessels were fairly well defined and the values obtained were relatively uniform. The level of light at the time of photography was less than optimum, but the orientation of the submarines to the light was such that consistent measurements were obtained.



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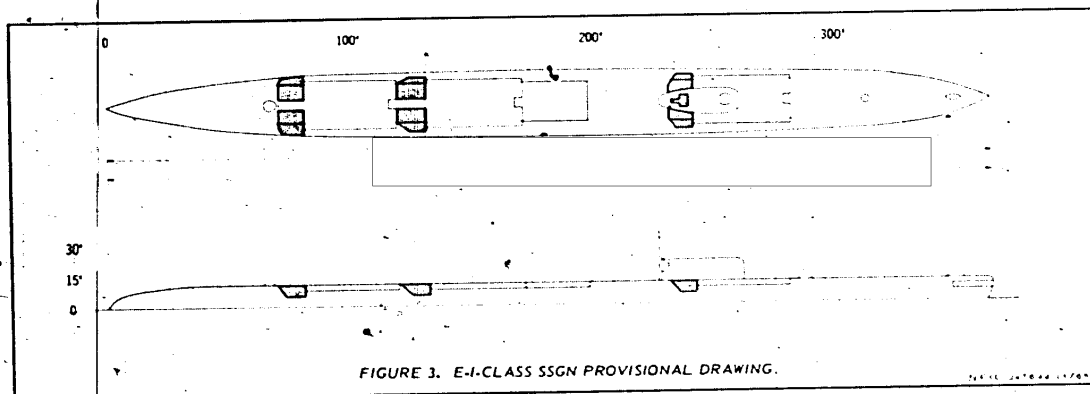
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The N-II-class SSN (Figure 2) was imaged on excellent quality photography in an environment of known values permitting accurate scaling in both axes. The light level was less than optimum, but the imagery was extremely sharp

permitting incorporation of the walkway along the topside centerline and rescue buoy locations, as well as the more salient features (sail, hull outline, and beam).



The E-I-class SSGN (Figure 3) has been identified at 3 Pacific Ocean Fleet bases. The imagery ranged from excellent to poor. On 1963 coverage of Strelak Straits both lighting and orientation were excellent. On 1964 Dunay/Razboynik coverage, a floating crane partially obscured

the midships section of the vessel. On 1964 coverage of Petropavlovsk/Larya Bay, poor lighting and orientation restricted observation of detail to the after section of the submarine.

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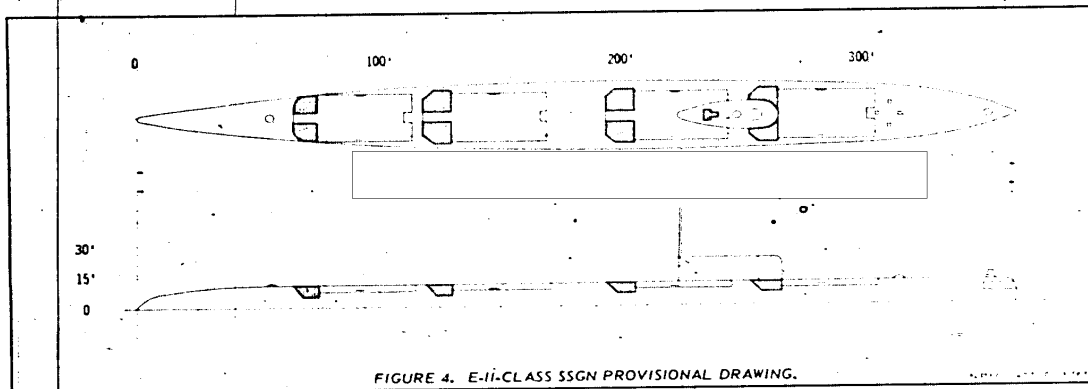


FIGURE 4. E-II-CLASS SSGN PROVISIONAL DRAWING.

Two E-II-class SSGN (Figure 4) were identified at a Northern Fleet base. Outstanding imagery permitted relatively precise plotting of details which is reflected in the provisional

drawing. The forward exhaust ports on each of the 2 vessels were partially obscured by the sail or sail shadow.

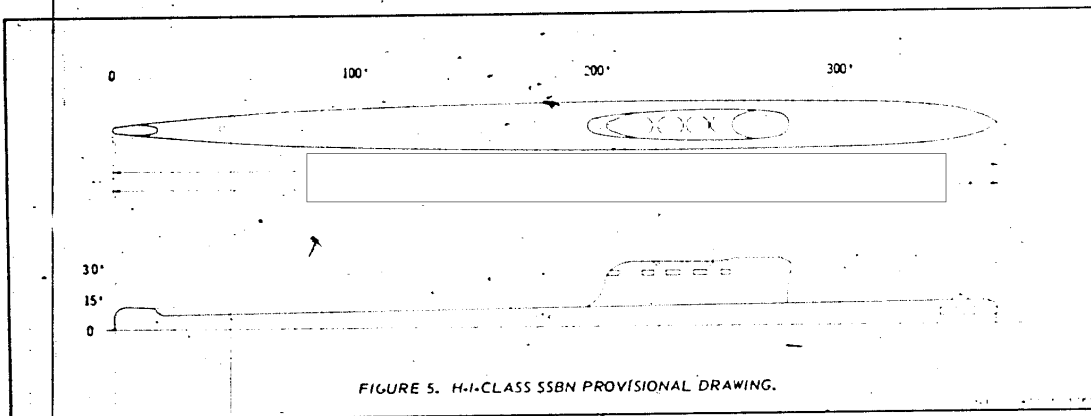


FIGURE 5. H-I-CLASS SSBN PROVISIONAL DRAWING.

Four H-I-class SSBN (Figure 5) were observed in the Northern Fleet. Imagery was excellent and unidentified details of the top of the sail are reflected in the provisional drawing. The mensural values of this class were verified and details of the hull configuration established.

The after edge of the bridge housing appears to slope down toward the top of the missile canopy area; however, lighting conditions and lack of stereoscopic coverage preclude assignment of any firm mensural values to this area of the sail on the elevation drawing.

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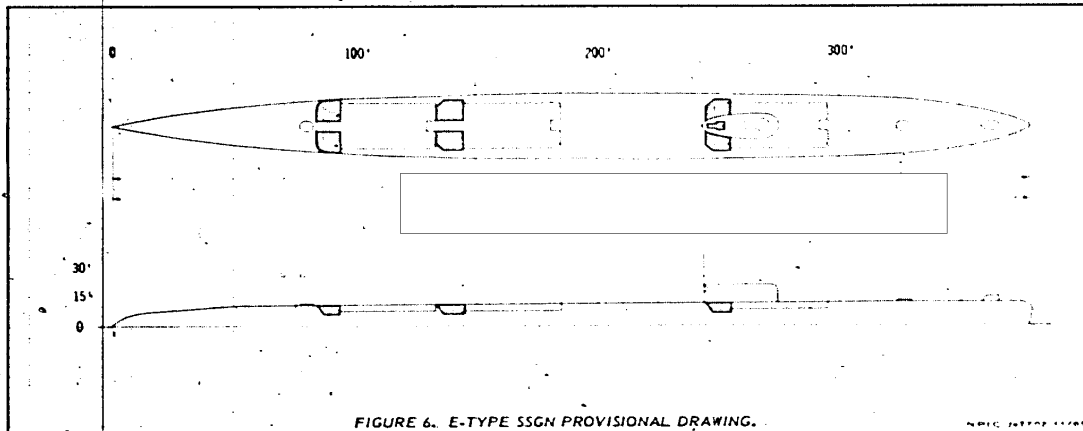


FIGURE 6. E-TYPE SSGN PROVISIONAL DRAWING.

Two E-type SSGN (Figure 6) of unconventional length overall were observed undergoing a yard/fitting-out period at Petrovka. The added length in both of these vessels occurs between the visible stern and the after edge of the aftermost exhaust port. The midship section of each unit was cluttered with steam pipes, stores, and yard activity. Due to this clutter it is impossible to determine whether a fourth missile launching compartment is present on these submarines. On 1 of the vessels the 3 visible launchers were ele-

vated. The imagery was excellent and provided more detail than has previously been discerned on KEYHOLE photography of Soviet submarines. For example, the painted wedge-shaped subsection of each of the rescue buoys (diameter approximately 5 feet) is clearly visible. On the basis of present information, it is believed that the differences in the locations of the visible sterns relative to the aftermost exhaust port cannot be equated to variations in trim or ballast.

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REFERENCES

DOCUMENTS

1. DIA. PC 230 2-1-64, *Naval Ships of the USSR*, Jan 64 (SECRET)

RELATED DOCUMENTS

- NAVPIC. 616 63-S, *Comparative PI Analysis of Three USSR "N" Class SSN Units*, Jul 63 (SECRET)
- NAVPIC. 603 64-S, *Photographic Analysis: USSR, "E" Class SSBN*, Feb 64 (SECRET)

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